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ABSTRACT

This study was designed to provide a detailed description of toddlers' social interactions in day care settings and to identify variables that promote positive encounters among children. Twenty-four toddlers, ranging in age from 17 to 28 months, were each observed for approximately 4 hours during regular center activities. Across all center settings, positive contact among children was more frequent than negative contact. Children exhibited both positive and negative social behavior most often during play with large equipment. Transition between activities also was associated with higher levels of negative contact. During activities with high levels of adult verbal involvement, children had reduced frequencies of vocalization to peers. Sequential analysis of specific social responses showed that peer-directed behavior was less likely to occur after a child had been in social contact with adult caregivers but was more likely to occur after a previous interchange with peers. Children frequently maintained the ongoing quality of an interaction, reciprocating the positive or negative tone of the previous behaviors. Probability of adult social response to a child decreased after that child had exhibited positive peer-directed behavior but increased after negative social behavior. (Author/RH)

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An Analysis of Toddlers' Social Behavior in a Day Care Setting

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Abstract

This study was designed to provide a detailed description of toddlers' social interactions in day care settings and to identify variables that promote positive encounters among children. Twenty-four toddlers, ranging in age from 17 to 28 months, were each observed for approximately 4 hours during regular center activities. Across all center settings, positive contact among children was more frequent than negative contact. Children exhibited both positive and negative social behavior most often during play with large equipment. Transition between activities also was associated with higher levels of negative contact. During activities with high levels of adult verbal involvement, children had reduced frequencies of vocalizations to peers. Sequential analysis of specific social responses showed that peer-directed behavior was less likely to occur after a child had been in social contact with adult caregivers, but was more likely to occur after a previous interchange with peers. Children frequently maintained the ongoing quality of an interaction, reciprocating the positive or negative tone of the previous behaviors. Probability of adult social response to a child decreased after that child had exhibited positive peer-directed behavior, but increased after negative social behavior.

An Analysis of Toddlers' Social Behavior in a Day Care Setting

The number of infants and toddlers in day care homes and centers has risen dramatically in recent years, generating considerable debate over the relative benefits and detriments of day care for very young children. This debate calls for an examination of the salient features of day care experience and the identification of variables that affect the quality of that experience.

One distinctive feature of day care for toddlers is extensive contact with other children. Although researchers have begun to trace the developmental course of early peer relationships, relatively little is known about ways of fostering beneficial forms of peer contact among toddlers. The purpose of the present study was to obtain detailed descriptive information on toddlers' interactions with peers and adults in a day care setting and to identify setting and behavior variables that appear to promote positive interaction among young children. The specific issues that were addressed were: (a) differences in toddlers' social behavior across activities that vary in content and in adult verbal involvement, (b) adult and peer responses to children's peer-directed behaviors, and (c) features of adult and peer behavior associated with increased probabilities of social contact among children.

Methods

Subjects and Setting

Subjects were 24 children who attended a community-based facility designed specifically for toddlers. The sample contained 6 boys and 6 girls in each of two age groups: (a) 17-20 month range (mean =

18.92 months) and (b) 23-28 month range (mean = 25.58 months). These target children had been attending the center full-time (mornings and afternoons, 5 days a week) for an average of 14.3 months (range = 2 to 26 months) at the time of their entry into the study.

The center consisted of one large room with low barriers to designate diapering and snack areas. Other low barriers were moved to accommodate activities that changed daily. Except for diapering and snack periods, children were free to move around the room and select their own activities. During this study, an average of 24.5 children and 5 adult caregivers were present in the classroom each day.

Procedures

Each of the target children was observed during regular center activities for a total of approximately 4 hours (24 minutes per day for 10 consecutive weekdays). The mean of actual observation time per child was 3.99 hours, with a range of 3.50 to 4.78 hours. Using a 10-sec interval recording system, observers noted all vocalizations (positive and negative) and touches (gentle and aggressive) that subjects directed to and recieved from both adults and peers. Additional behavior categories included: adult and peer proximity to the child, adult verbal involvement in the child's activity, adult praise, subject's active play, joint activity participation with peers, exchange of toys with peers, and child laughter. Appendix A provides a description of variables that were selected or derived from specific categories for the present analyses.

Due to the complexity of the observation system, target-adult interactions and target-peer interactions were recorded separately.

During approximately three-fourths of the observations, both types of interaction were recorded simultaneously by two observers. For the remainder, one observer alternated collection of target-adult and target-peer data. Data from the latter observations were not included in analyses of the relationship between adult behavior and peer encounters.

A third observer was present for approximately 18 percent of the observations to provide an assessment of observer agreement. These assessments were conducted throughout the study and included every target child. Overall agreement between observers was calculated as the average of occurrence agreement (agreements on occurrence of a behavior divided by agreements plus disagreements and multiplied by 100) and nonoccurrence agreement (agreements on nonoccurrence of a behavior divided by agreements plus disagreements and multiplied by 100). Average overall inter-observer agreement across categories was 84.5 percent (range = 60 to 100 percent).

Activity Definitions

Content. Center activities were classified into one of the following content categories: (a) large equipment (e.g., slide and tunnel); (b) dramatic play materials (e.g., dress-up clothes and cooking toys); (c) miniatures (e.g., cars and farm animals); (d) manipulables and sound toys (e.g., puzzles and music boxes); (e) riding toys (e.g., tricycles); (f) mobile toys (toys used outside a designated area, such as push-toys and balls); (g) transition (not playing with any toy and not involved in any activity); and (h) diapering and toileting.

Level of adult verbal involvement. All play activities with spatial boundaries (i.e., those that would be included in the first four categories above) were rated according to the frequency of adult comments to any child participating in the activity. Based on those ratings, each activity was classified as being high, medium, or low in adult verbal involvement.

Results

Analyses of Variance Across Activities

Behavioral differences associated with age, sex, and activity classification were evaluated by repeated measures ANOVA's. For significant main effects, differences between cell means were assessed by least significant difference (lsd) *t* tests. Due to the number of analyses performed in the present study, all effects were tested at a .01 significance level.

Content differences. During play with large equipment, children directed more social behavior to peers and received more social contacts from peers than at any other time. As illustrated in Figures 1 and 2, the effect for large equipment was primarily due to significantly higher rates of positive social behavior (positive and neutral vocaliziation, laughter, touches, and toy offers). Although target children also exhibited more negative social behavior (angry and distressed vocalization, physical aggression, and toy takes) during play with large equipment, they received more negative contact from peers during transition. Additional evidence of the facilitative influence of large equipment was found in significant effects for initiations and vocalizations. Children initiated and vocalized to peers more frequently during play with large equipment than during any

other activity. The rate and duration of children's interactions (sustained episodes during which a child and peer both directed behaviors toward each other) did not vary significantly across content categories.

Level of adult verbal involvement. The only significant effect for level of adult involvement was found in target children's vocalizations to peers. The toddlers vocalized more frequently during activities classified as low or medium in adult involvement than they did during high-level activities. No significant effects were found for peers' vocalizations to target children, positive or negative social behavior, initiations, or interactions.

Quality of social behavior. Children's encounters with peers were predominantly positive, as shown in Figures 1 and 2. When compared to negative social behavior, significantly higher proportions of positive social behavior and positive initiations were consistant across all activity content categories and across all levels of adult verbal involvement.

Subject variables. The behaviors examined in this study did not differ significantly across sex or age level.

Sequential Analyses

To obtain more detailed information about specific interrelationships among behavioral variables, a lag-1 bivariate sequential analysis was performed on data segmented into 10-sec units. For example, the unconditional probability of a child's peer-directed social behavior was compared with the conditional probability that a peer-directed social behavior would occur in the interval immediately

following interaction with a caregiver. Statistical significance of the difference between conditional and unconditional probabilities was evaluated by calculation of z scores, as described by Gottman and Parkhurst (1980).

Sequential effects on the target children's behavior. As displayed in Figures 3 and 4, both positive and negative social behaviors were significantly less likely if the previous interval had included proximity to adults (within 3 feet), general adult comments (directed to any child in the target's activity), or social behavior from the adult to the target child (vocalization or touch). In contrast, proximity to peers and previous social contact from peers were associated with increased probabilities of child social behavior. Although any type of child behavior was more likely after any type of peer behavior, an interaction was found for the quality of responses. The probability of positive child response was markedly higher after receiving positive peer contact, while the probability of negative child response increased most dramatically after negative behavior from a peer. The likelihood of positive child behavior also increased after an interval of joint activity participation with a peer, but that for negative behavior did not.

Sequential effects on behavior received from peers. The pattern of sequential effects for behavior directed by a peer to the target child was the same as that for the target's behavior toward a peer. In general, contact with an adult appeared to decrease the probability of receiving social response from a peer, while previous peer encounters increased that probability. Peers also tended to match the

target child's behavior in quality, most often continuing either the positive or negative tone of the interaction.

Sequential effects on adult cargivers' behavior. Any adult contact with the target child (including neutral vocalizations, praise and touching) became less likely after the child had directed a positive social behavior to a peer (see Figure 5). In contrast, the probability of adult vocalization (both neutral and praise) increased after a negative contact with a peer. The pattern for negative adult vocalizations could not be examined because of the low frequency of such vocalizations.

Discussion

Results from this study are consistent with previous findings that large nonportable equipment, such as slides, tunnels, and playhouses, foster positive social contacts among toddlers in day care centers (DeStefano & Mueller, 1982; Howes & Rubenstein, 1981). However, DeStefano and Mueller also found higher rates of conflict and negative affect during play with small portable toys, effects not found in the this research. One possible explanation for this discrepancy is that adults in the former study were instructed to minimize their interactions with the children, while adults in the present setting did not receive any special instructions from the experimenters. They may have been more likely to suppress negative child behaviors. Additionally, DeStefano and Mueller observed children in a partitioned area where access to materials was controlled. Thus, during the small toys condition, large equipment was not available. In contrast, the present subjects could play with either large or small toys as they

chose. Perhaps the restriction of alternative activities accounted for some of the negative behavior observed in the previous research.

The present study also allowed an analysis of social encounters across specific types of small toys (e.g., manipulables, miniatures, and dramatic play) and during non-play activities (e.g., transition and diapering). The results suggest that the specific type of small toy does not significantly affect social behavior, but that periods of transition, during which a child is not actively participating in any activity, increase the probability of negative social contacts.

As other authors have suggested, large toys may promote positive interaction because they allow children to contact a common object without interfering in each other's play (DeStefano & Mueller, 1982; Howes & Rubenstein, 1981). An additional possibility is that adult caregivers typically provide different types of instructions and feedback to children during play with large equipment. Further analyses are planned to examine this possibility. Results across studies are consistent in suggesting that caregivers can encourage positive interaction among toddlers by providing access to large play equipment. Minimizing transition time between activities may also be important for discouraging negative peer encounters.

In further analyses of activity differences, those that were characterized by high levels of adult verbal involvement appeared to depress children's vocalizations to peers. This effect is consistent with Carpenter's (1983) evidence that preschool children talk less to peers and more to adults during activities with higher degrees of adult structure.

In the present study, the level of adult involvement associated with an activity was not related to overall rates of social behavior among children (including vocalization, touching and toy exchange) or to the quality of that behavior. However, on a moment-to-moment basis, an adult comment to any child in the target's activity decreased the likelihood that the target would give or receive peer social contact. Although the toddlers were apparently responsive to adult interjections in the immediate setting, perhaps the toddlers did not discriminate and/or respond to the level of adult involvement that characterized a given activity over the course of several weeks.

Further evidence that adults may interfere with toddlers' peer interactions is found in decreased probabilities of any type of peer contact, positive or negative, following adult proximity, vocalization, or physical contact with the target child. For very young children, adults are particularly salient, the source of interesting events and potent reinforcers. Adult caregivers, in particular, direct much of their behavior toward children, often attempting to engage them in activities and potentially diverting them from attention to other children. Certainly, adult-child interaction is an essential feature of nurturant, educational day care environments. These data do suggest, however, that activities designed to promote peer interaction should be arranged to require minimum amounts of adult direction. Attempts to actively structure exchanges among children may actually be counterproductive.

Sequential analyses of child-adult and child-peer contacts reveal predictive relationships between a child's behavior toward peers and the subsequent responses of both peers and adults. Any type of

peer-directed behavior was associated with an increased probability of response from a peer. Furthermore, probabilities were highest for a response that matched the positive or negative quality of the initial peer-directed behavior. The data suggest that even very young children will maintain ongoing social exchanges and respond differentially to the quality of their partner's social behavior. However, these analyses are only suggestive and do not establish a causal relationship between the children's behaviors. The same environment that facilitates a child's social act toward a peer may also facilitate the peer's response.

In contrast to peer responses, adults' positive social responses to the child were less likely after a child's positive peer-directed behavior and more likely after a negative social act. Without more specific information on the content of adults' vocalizations, these effects are difficult to interpret and may not be characteristic of most day care centers. The center observed in this study strongly emphasizes the use of positive control techniques (e.g., redirection and praise) and minimizes punitive or critical interactions with the children. For instance, negative adult vocalizations were too infrequent to be reliably observed or analyzed. Thus, the increase in adult vocalizations, including praise, after negative peer contacts may represent adults' attempts to correct children's behavior and to praise improvements immediately.

Whatever the explanation for adults' and peers' responses to a child's social behavior, the effects of those responses on the child's subsequent behavior remain a question for further analyses. Responses

defined as positive and negative by adult observers may or may not be functionally related to the child's actions.

In summary, these data demonstrate that toddler peers do interact positively across a variety of day care activities. Adult caregivers may promote such interactions by providing activities focused on large play equipment and by occasionally limiting their own participation in the children's activities. The data also suggest that both peers and adults respond differentially to qualities of a child's social behavior. The function of such responses for the child's own social development are an interesting topic for further research.

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Appendix A
Variables Selected for Analysis

Peer-Directed Behavior

Each of the following categories is represented by two variables, one describing the target child's behavior toward peers and one describing peers' behavior toward the target child. All behaviors except touching were assumed to be socially directed if accompanied by visual orientation toward the other person or use of the person's name.

Positive social behavior. Positive or neutral vocalization, laughter, gentle touching, giving or offering toys.

Negative social behavior. Angry or distressed vocalization, physical aggression, taking or attempting to take toys.

Vocalization. Any peer-directed vocalization or laughter.

Initiation. The first social behavior between a pair of children after at least 10 sec in which they have had no social contact.

Other Peer Contact

Interaction. Episode during which the target child and a peer both direct social behaviors toward each other. An interaction begins when an initiation by one child receives a response from the other within the same or the immediately following 10 sec interval. It continues until there has been a interval with no social contact between the two.

Joint activity participation. The target child and at least one peer are participating in the same activity.

Proximity to peers. The target child is within 3 feet of another child.

Adult Behavior

With the exception of adult verbal involvement, the following behaviors were recorded only if they were directed toward the target child.

Neutral vocalization. Any vocalization that is not critical of the child and that would not be classified as praise.

Praise. Positive evaluative statement about the child's personal characteristics, behavior, or a product of the child's work.

Touch. Any gentle touch.

Proximity to adults. The target child is within 3 feet of an adult caregiver.

Adult verbal involvement (general adult comments). Any adult vocalization to any child participating in the same activity as the target child.

CHILDREN'S SOCIAL BEHAVIOR TOWARD PEERS DURING CENTER ACTIVITIES

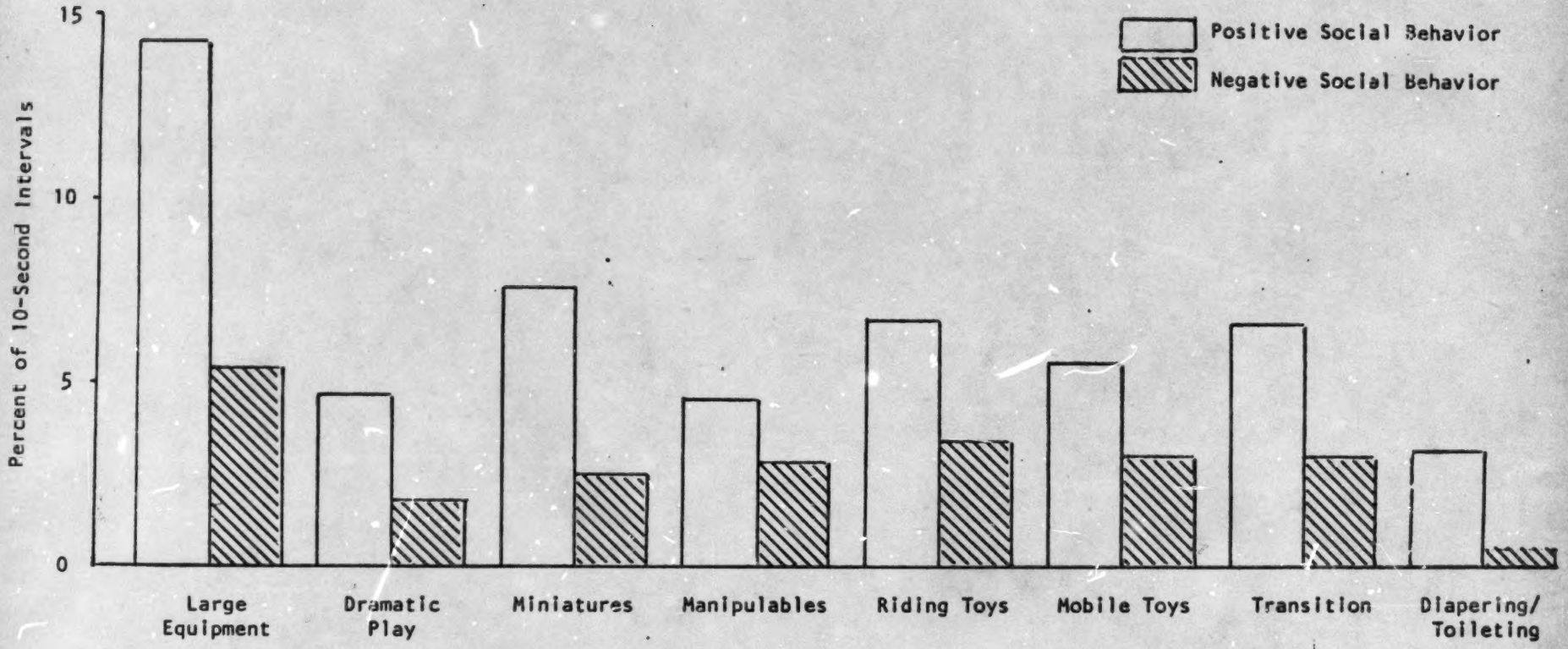


FIGURE 1

SOCIAL BEHAVIOR RECEIVED FROM PEERS DURING CENTER ACTIVITIES

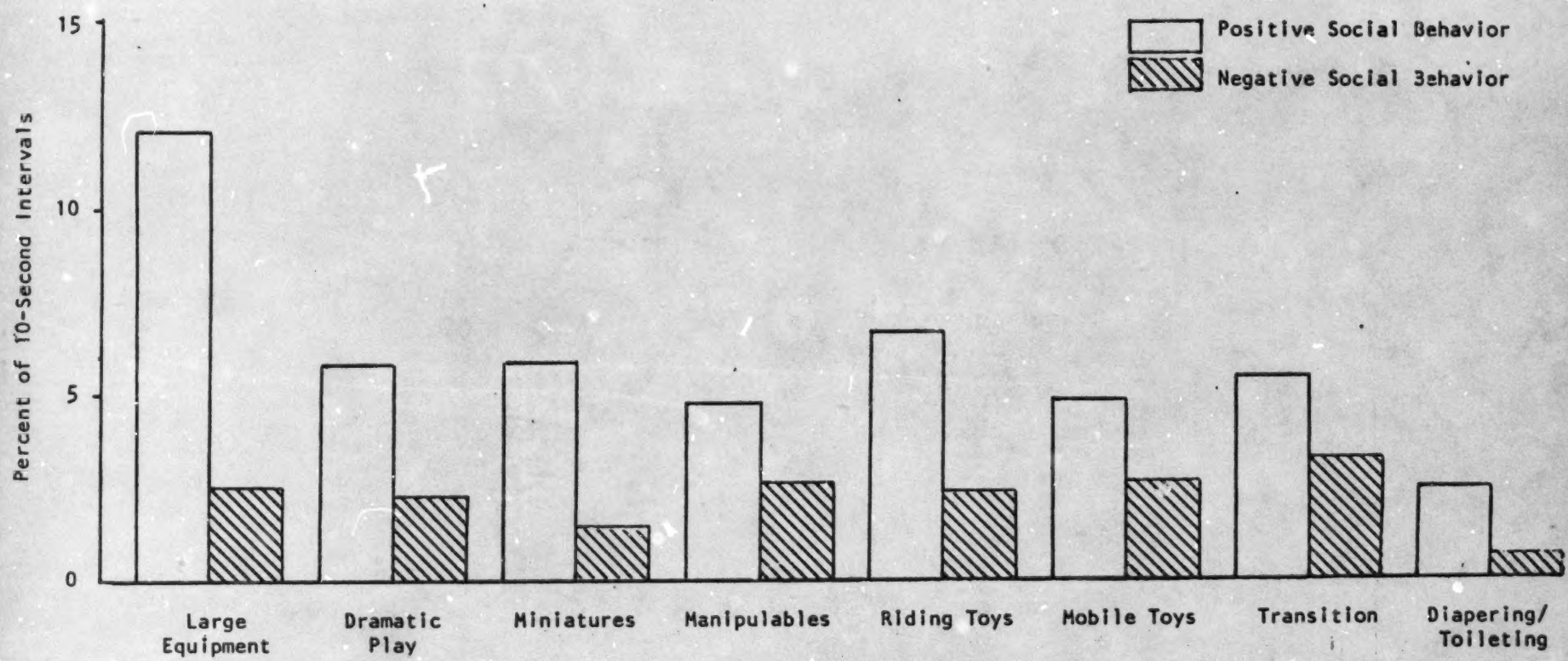
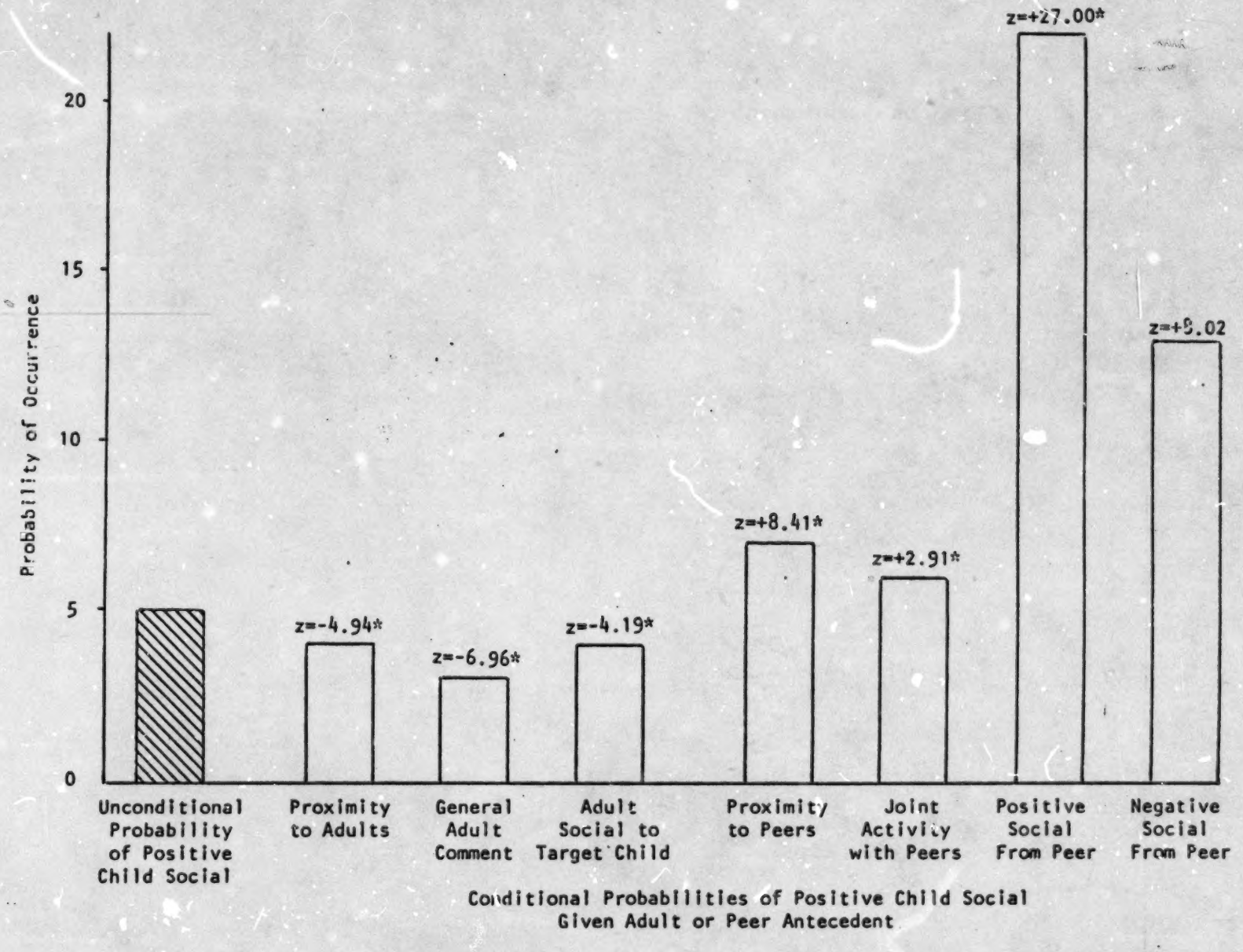


FIGURE 2

CHILDREN'S POSITIVE PEER-DIRECTED BEHAVIOR FOLLOWING CONTACT WITH ADULTS AND PEERS

COMPARISON OF CONDITIONAL AND UNCONDITIONAL PROBABILITIES

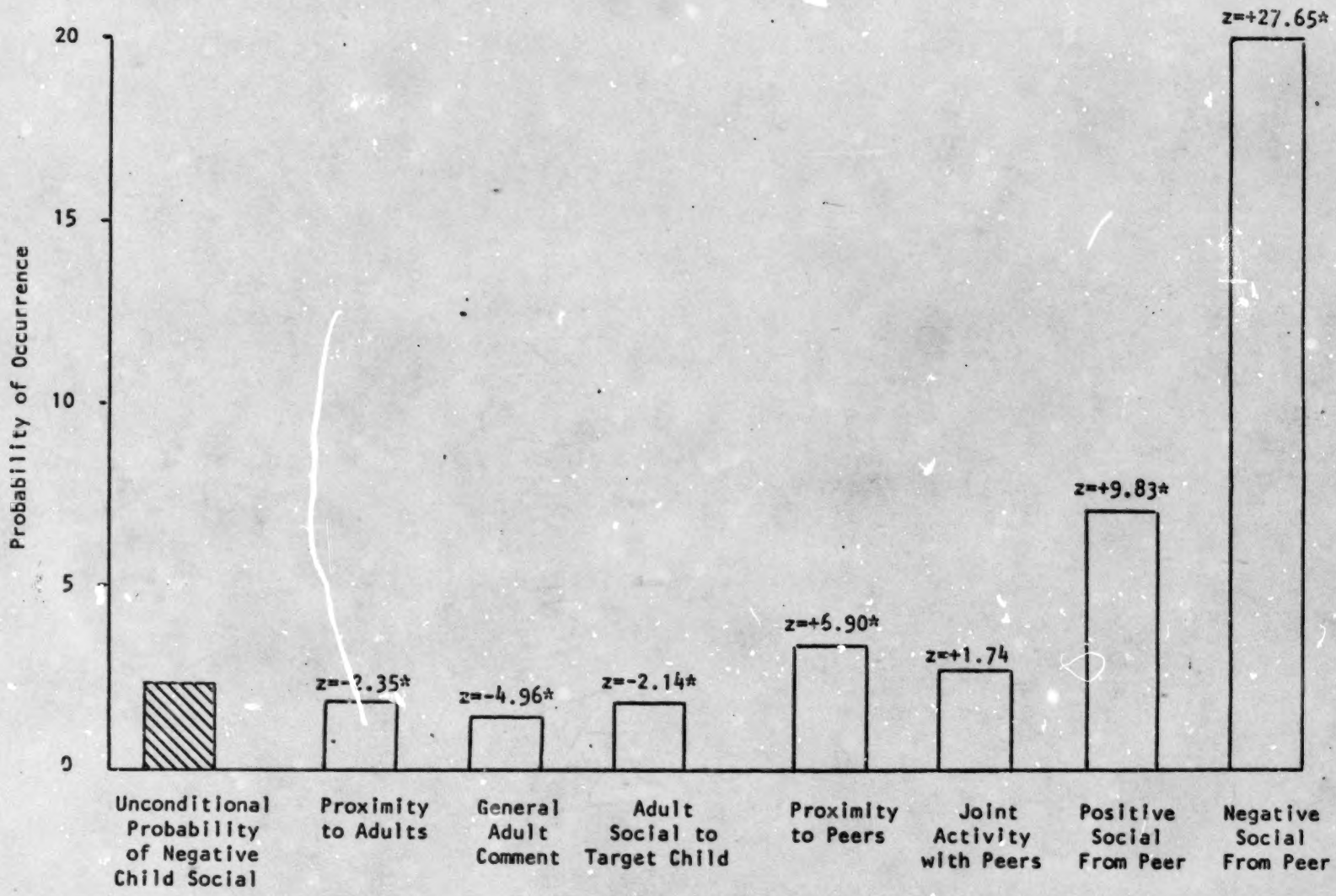


* $p < .05$

FIGURE 3

CHILDREN'S NEGATIVE PEER-DIRECTED BEHAVIOR FOLLOWING CONTACT WITH ADULTS AND PEERS

COMPARISON OF CONDITIONAL AND UNCONDITIONAL PROBABILITIES



* $p < .05$

FIGURE 4

ADULT BEHAVIOR DIRECTED TO A CHILD FOLLOWING THE CHILD'S SOCIAL CONTACT WITH PEERS

COMPARISON OF CONDITIONAL AND UNCONDITIONAL PROBABILITIES

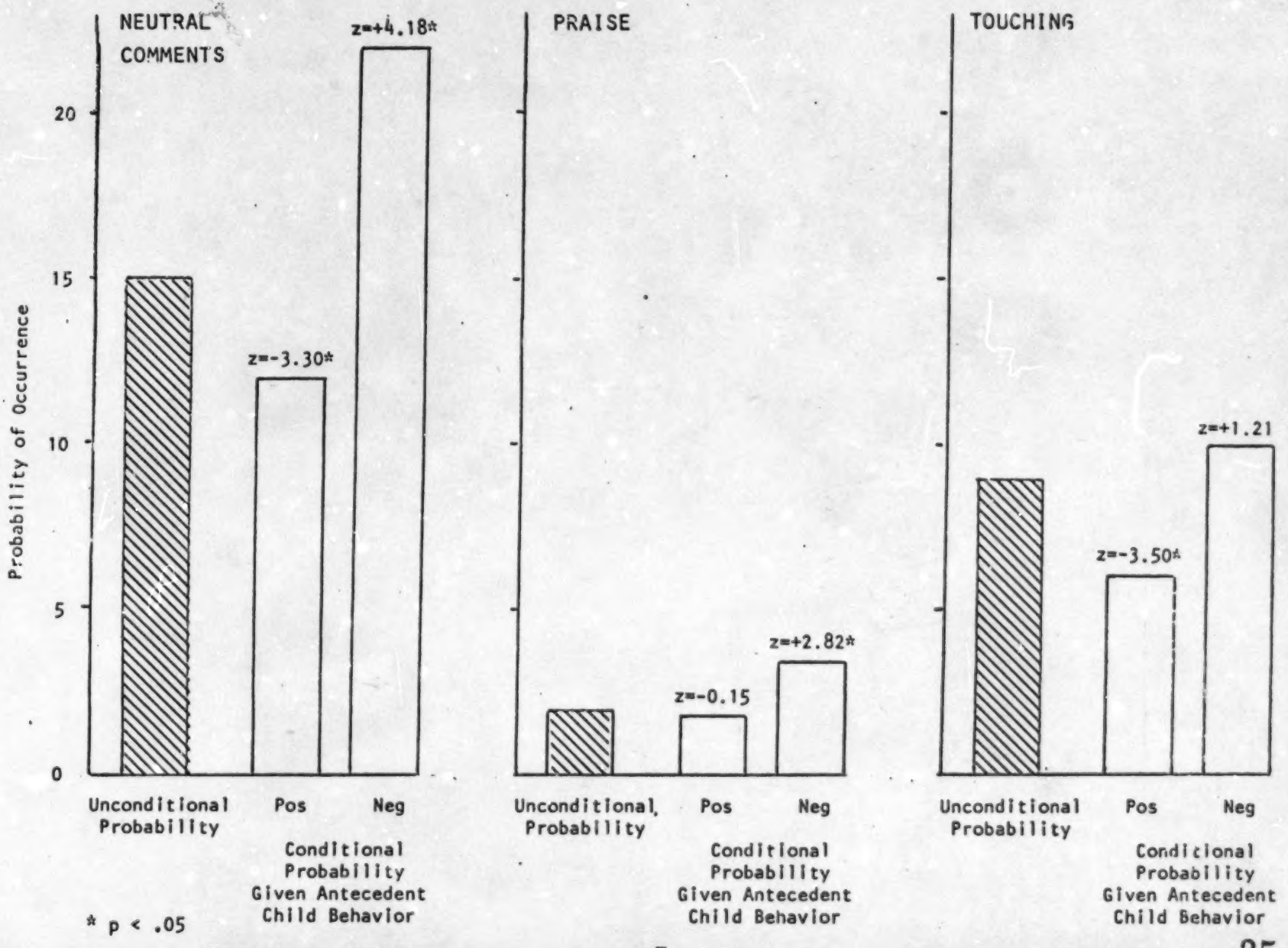


FIGURE 5